

SUSHCHEVSKIY, M.G.

World exhibition in Brussels. Zhivotnovodstvo 20 no.4:84-86 Ap '58.
(Brussels--Exhibitions) (Agriculture) (MIRA 11:3)

SUSHCHEVSKIY, M.G.

World Fair of 1958 in Brussels. Pochvoedenie no.8:76-86
Ag '59. (MIRA 12:11)

(Brussels--Exhibitions)

SUSHCHEVSKIY, M., agronom.

Belgian viticulturists. Nauka i pered. op. v sel'khoz. 9
no.2:76-78 F '59. (MIRA 12:3)
(Belgium--Viticulculture)

SUSHCHEVSKIY, M., agronom

Agriculture at the Soviet exhibition in New York. Nauka i pered.
op v sel'khoz. 9 no.6:67-69 Je '59. (MIRA 12:9)
(New York--Exhibitions)
(Agricultural exhibitions)

SUSHCHEVSKIY, M.G., agronom

Agriculture of Mexico. Zemledelis 8 no.9:84-87 8 '60.
(Mexico--Agriculture) (MIRA 13:8)

SUSHCHEVSKIY, M.G., agronom
Agriculture in Cuba.

Zemledelie 25 no.5:75-77 My '63.
(MIRA 16:7)
(Cuba--Agriculture)

NIKOLAYEVSKIY, P., general-mayor inzh. voysk; SUSHCHEVSKIY, V., podpolkovnik;
VALYAVKIN, A., mayor; MALYUGIN, S., podpolkovnik

The building of bridges; underwater bridges. Voen.-inzh. zhur.
102 no.5:26-32 My '58. (MIRA 11:6)
(Military bridges)

BRUK, Vadim Arkad'yevich; GARSHEININ, V.V.; KURNOSOV, A.I.; SUSHCHIK,
A.S., nauchn. red.; RABINGVI-VIZEL', A.A., nauchn. red.;
SIL'VESTROVICH, G.A., red.; PERSON, M.N., tekhn. red.

[Manufacture of transistor devices] Proizvodstvo polupro-
vodnikovyykh priborov. Moskva, Proftekhizdat, 1963. 205 p.
(MIRA 16:11)

(Transistors)

ALADINSKIY, V.K.; BELOZEROVA, L.V.; YERMOSHIN, V.D.; SUSHCHIK, A.S.

Precision silicon voltage stabilizer tubes. Izm.tekh. no. 8:39-42 Ag '64.
(MIRA 17:12)

E 13616-65 EWT(m)/EWP(t)/EWP(b) IJP(c)/ASD(a)-5/ESD(c) JD
ACCESSION NR: AP4046790 S/0115/62/000/008/0039/0042

AUTHOR: Aladinskiy, V. K.; Belozeroza, L. V.; Yermoshin, V. D.;
Sushchik, A. S.

TITLE: Precision voltage-regulating silicon diodes 6

SOURCE: Izmeritel'naya tekhnika, no. 8, 1964, 39-42

TOPIC TAGS: silicon diode, voltage regulating diode, precision silicon diode
/ D818 silicon diode

ABSTRACT: Generalities about silicon voltage-regulating diodes are given, and Soviet makes are described. D818-A, -B, -V, -G, -D, and -Ye types have these characteristics: rated current, ma; stabilized voltage, $9\text{ v} \pm (5-15)\%$; differential resistance, 18 ohms or less; deviation of the stabilized voltage, $\pm (16-320)\text{ mv}$ for $-60+120\text{C}$; average temperature coefficient of voltage, $\pm (0.001-0.02)\%$ per 1C for $-60+120\text{C}$ (more detailed table supplied). D818

Card 1/2

L 17616-6^e
ACCESSION NR: AP4046790

diodes are claimed to be resistant to mechanical and climatic influences. Their aging for 5,000 hours (50 diodes at 10 ma and 50 diodes at 33 ma) resulted in a deviation of 10 mv from the stabilized voltage. Orig. art. has: 7 figures, 15 formulas, and 1 table.

ASSOCIATION: none

SUBMITTED: 00

ENCL: 00

SUB CODE: EC

NO REF SOV: 000

OTHER: 000

Card 2/2

L 04616-67	EWT(1)/EEC(k)-2/T/EWP(k)	IJP(c)	WG
ACC NR: AP6033285	SOURCE CODE: UR/0141/66/009/005/0919/0922		
AUTHOR: <u>Sushchik, M. M.; Freydmann, G. I.</u>			
ORG: Scientific-Research Radiophysics Institute at Gor'kiy University (Nauchno-issledovatel'skiy radiofizicheskiy institut pri Gor'kovskom universitete)			
TITLE: The width of angular and frequency spectra of radiation from a laser with a nonlinear absorber			
SOURCE: IVUZ. Radiofizika, v. 9, no. 5, 1966, 919-922			
TOPIC TAGS: nonlinear optics, laser output, Q switching, nonlinear switch, laser radiation spectrum, Q factor, laser emission			
ABSTRACT: Field build-up time of a laser with a nonlinear absorber as a Q-switch is a function of the spontaneous emission over a certain finite interval. Unless thus considered, errors are introduced in the determination of the width of the angular and frequency spectra of a laser and the dependence of these on, say, pumping energy, Q-factor, etc., as was the case elsewhere (W. R. Sooy, Appl. Phys. Lett., 7, 37, 1965). The problem is limited to a case of homogeneously pumped two-level molecules of the active medium and nonlinear filter. Conditions for excitation of one type of cavity mode are derived for a laser with a nonlinear absorber and plane-mirror cavity. The assumption that in the course of a giant pulse, differences in populations of an active medium and nonlinear filter are independent of coordinates, is shown to be invalid. The results are valid only for $\tau \approx \tau_3$ (where $\tau = +T_1^{-1}$, T_1 being the effective			
Card 1/2	UDC: 621.378.325.001		

L 04616-67

ACC NR: AP6033285

lifetime of an excited state of the active medium) and define initial conditions for the subsequent analysis of a giant pulse. Orig. art. has: 8 formulas. 0

SUB CODE: 20/ SUBM DATE: 09Feb66/ ORIG REF: 002/ OTH REF: 002/ ATD PRESS: 5100

Card 2/2 LC

1ST AND 2ND ORDERS

Naphtheno-aromatic hydrocarbons of the naphthalene and tetralin series containing a cyclopentyl ring in the side chain. E. S. Pokrovskaya and R. Ya. Suschik. *J. Gen. Chem.* (U. S. S. R.) 6, 2201-2301 (1939). Condensation of naphthalene with cyclopentane (I) in the presence of $AlCl_3$ yields *cyclopentynaphthalene*, b.p. 134.5°, d_4^{20} 1.0410, d_4^{25} 1.0455, n_D^{20} 1.6111, n_D^{25} 1.6008, n_D^{20} 1.6007, mixts. of isomeric *dicyclopentynaphthalenes*, b.p. 182.7°, 187.02°, 192.200°, resp., mixts. of isomeric *tricyclopentynaphthalenes*, b.p. 222.5° and 227.32° (resp., and *tetracyclopentynaphthalene* (II), m. 135.6°. Condensation of II with I in the presence of $AlCl_3$ gives *pentacyclopentynaphthalene*, m. 170-7°. Condensation of naphthalin with I under analogous conditions gives *cyclopentyltetralin* (III), b. 139.5-41°, solidifies at -50°, d_4^{20} 0.9648, d_4^{25} 1.0020, n_D^{20} 1.5510, n_D^{25} 1.5531; *dicyclopentyltetralin* (IV), b. 178.5-81°, solidifies at -60°, d_4^{20} 1.0132, d_4^{25} 1.0184, n_D^{20} 1.5907, n_D^{25} 1.6010; and 2 fractions, b. 173.5° and 183.200°, resp., conty. probably isomers of IV. When IV is condensed with I cryst. *tricyclopentyltetralin*, m. 115-10°, is obtained, and also a liquid isomer, b. 218-22°, solidifies at -17°, d_4^{20} 1.0233, n_D^{20} 1.5970, n_D^{25} 1.5909, and *tetracyclopentyltetralin*, b. 250-70° (2 mm. 2). Hydrogenation of III yields *cyclopentyldecalin* (V), m. -1.8°, b. 118-220° (2), d_4^{20} 0.9238, d_4^{25} 0.9290, n_D^{20} 1.4981, n_D^{25} 1.4965. Hydrogenation of IV gives *dicyclopentyldecalin*, b. 140-2°. The reaction of the hydrocarbons with 100% H_2SO_4 at 20° has been investigated. V did not react whereas the other hydrocarbons reacted rather readily. The soly. in levulinic and pyruvic acid was detd. All hydrocarbons were easily sol. in dichloromethylene. Gertrude Barend.

Handwritten note: Nat. Mineral Fuels, AS USSR

ASH-11A METALLURGICAL LITERATURE CLASSIFICATION

GROUPS

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

10

Hydrocarbons of the hexylbiphenyl and hexyltetralin series and their hydrogenation products. E. S. Pokrovskaya and R. Ya. Sushchik. *J. Gen. Chem. (U.S.S.R.)* 11, 170-8(1941).—Condensation of biphenyl with bromohexane in the presence of $AlCl_3$ in the cold yielded 2 mono-hexylbiphenyls, (I), b₁ 149-51°, d₄²⁰ 0.9048, n_D²⁰ 1.5040, n_D²⁵ 1.5005, solidification point -30°, and (II), b₁ 141-3°, d₄²⁰ 0.9013, n_D²⁰ 1.5041, n_D²⁵ 1.5000, solidification point -40°; and 3 dihexylbiphenyls, (III), b₁ 185-8°, d₄²⁰ 0.9353, n_D²⁰ 1.5440, n_D²⁵ 1.5470, solidification point -30°, (IV), b₁ 180-11°, d₄²⁰ 0.9349, n_D²⁰ 1.5449, n_D²⁵ 1.5407, solidification point -28°, and (V), b₁ 192-4°, d₄²⁰ 0.9343, n_D²⁰ 1.5452, n_D²⁵ 1.5473. Reaction of a mixt. contg. mono- and dihexylbiphenyls with C_6H_5Br in the presence of $AlCl_3$ without cooling gave 3 trihexylbiphenyls, (VI), b₁ 220-2°, d₄²⁰ 0.9140, n_D²⁰ 1.5302, n_D²⁵ 1.5330, solidification point -23°, (VII), b₁ 228-31°, d₄²⁰ 0.9154, n_D²⁰ 1.5322, solidification point -23°, and (VIII), b₁ 210-18°, d₄²⁰ 0.9167, n_D²⁰ 1.5327, solidification point -22°, the latter fraction being contaminated with a small amt. of lower homologs. Condensation of tetralin with C_6H_5Br in the presence of $AlCl_3$ while cooling slightly resulted in the formation of hexyltetralin (IX), b₁ 120.5-2°, d₄²⁰ 0.9203, n_D²⁰ 1.5171, solidification point below -50°, and dihexyltetralin, b₁ 182-4°, d₄²⁰ 0.9303, d₄²⁵ 0.9358, n_D²⁰ 1.5250, solidification point -30°. Attempts to introduce more than 2 hexyl groups into tetralin were unsuccessful. Hydrogenation of IX in the presence of a Pt catalyst for 40 hrs. at 180° gave hexyldecalin, b₁ 120-3°, d₄²⁰ 0.8793, n_D²⁰ 1.4800, solidification point -50°. II on an analogous treatment gave hexylbicyclohexyl, b₁ 150-3°, d₄²⁰ 0.8830, n_D²⁰ 1.4827, n_D²⁵ 1.4817, solidification point -48°, IV gave dihexylbicyclohexyl, b₁ 181-4°, d₄²⁰ 0.8853, n_D²⁰ 1.4870, solidification point -20°, whereas the hydrogenation of VII proceeded with the formation of an incompletely hydrogenated compd., b₁ 210-13°, n_D²⁰ 1.5068, instead of the expected trihexylbicyclohexyl. Sulfonation of the mono- and dihexylbiphenyls and mono- and dihexyltetralins could be easily carried out at 20° and 40° with 100% H_2SO_4 and complete sulfonation was achieved while shaking for 15 min. Trihexylbiphenyl was sulfonated only in an amt. of 3% when treated with 100% H_2SO_4 at 40°. The polycyclic hydrogenated hydrocarbons did not react at all at 40° with H_2SO_4 contg. 3% SO_3 . Except for hexylbiphenyl, the aromatic hydrocarbons dissolved in levulinic acid only to a very slight degree, and the naphthene compds. did not dissolve at all even in 6 times the amt. of acid at 50°.

G. B. Berend

ASH-SLA ALLURGICAL LITERATURE CLASSIFICATION

SUSCHNIK, R. YA.

"The Action of Nitric Acid upon Cetadecane and Hexatricosane," Dok. AN. 70, No. 2 ,
1950. Mbr., Petroleum Inst. Dept. Tech. Sci., Acad. Sci; -c1950-

SUSHCHIK, R. YA.

USSR/Chemistry - Petroleum

1 Jul 52

"Hydrocarbons of the Decalin Series in Dossorsk
Petroleum," S. S. Nifontova, R. Ya. Sushchik, A. A.
Sudkova

"Dok Ak Nauk SSSR" Vol LXXXV, No 1, pp 115, 116

Both Zelinskiy's catalytic dehydrogenation method
and the picrate method were used in the investiga-
tion of kerosene from Dossorsk petroleum. Ten-deg
fractions were sep'd and analyzed. Presented by
Acad A. V. Topchiyev 3 May 52.

224T17

SUSHCHIK, R. YA.

USSR/Chemical Technology. Chemical Products and Their I-14
Application--Treatment of natural gases and
petroleum. Motor fuels. Lubricants.

Abs Jour: Ref Zhur-Khimiya, No 3, 1957, 9274

Author : Topchiev, A. V., Nifontova, S. S., Suchkova, A. A.,
and Sushchik, R. Ya.

Inst : Petroleum Institute of The Academy of Sciences USSR
Title : Decalin and Its Homologs in Some Soviet Crudes

Orig Pub: Tr. In-ta nefi AN SSSR, 1956, Vol 8, 21-29

Abstract: Kerosenes from Dossor, Ekhabin, Nebit-Dag, and
Romashkin crudes were subjected to fractional dis-
tillation followed by dearomatization by treatment
with 98% H₂SO₄ or adsorption on silica gel. The
dearomatized fractions were subjected to exhaustive
dehydrogenation over a Pt-Fe catalyst. The aromatic
hydrocarbons produced during hydrogenation and
distillation are extracted with picric acid from
the catalyzate or from the aromatics desorbed from

Card 1/2

SUSHCHIK, R YA

Aerospace, A. A. Sukhorov, (Petroleum Inst., Moscow)

38688

S/510/60/014/000/001/006
D244/D307

2

6.3300
AUTHORS: Topchiyev, A.V., Nifontova, S.S., Musayev, I.A., Sanin, P.
I., Suchkova, A.A., Sushchik, R.Ya., and Qhekalova, N.N.

TITLE: Method of isolating aromatic hydrocarbons from medium
(kerosene)fractions of petroleum

SOURCE: Akademiya nauk SSSR. Institut nefti. Trudy, v. 14, 1960,
Khimiya nefti, 12 - 57

TEXT: Results are given of the separation of crude Romashinsk petro-
leum into distillation fractions, separation of aromatic hydrocar-
bons from the 175 - 300°C fractions, separation of the aromatic frac-
tions into structural types and a study of group-structural composi-
tion of the monocyclic aromatic hydrocarbons. The crude material was
from the Aktashsk area, Mikhaylovsk level, (depth 1583 - 1585 m).

Properties of the crude oil were as follows: d_4^{20} 0.8612, flash point
35°C, viscosity 7.13 cs at 50°C, and 2.84 cs at 100°C, wax content -
4.9 % melting point of wax 50°C, content of silica gel resins - 9.86
%, asphaltene content 2.9 %, elemental composition C 84.85 %, H
Card 1/3

Method of isolating aromatic ...

S/510/60/014/000/001/006
D244/D307

12.85 %, N 0.53 %, O 0.26 % and S 1.83 %. It was shown that narrow fractions of aromatic hydrocarbons can be separated by silica gel chromatography from a broad aromatic fraction from the 175 - 300° cut. Individual hydrocarbons were oxidized with a 30 % solution of H₂O₂ at 75 - 80°C. It was shown that the hydrocarbon components are not oxidized under these conditions. However the aromatic fractions having n_D²⁰ from 1.4950 to 1.55 underwent desulphurization. It was possible to use home produced Al₂O₃ to separate quantitatively synthetic binary mixtures of monocyclic and bicyclic hydrocarbons. The naphthene aromatic hydrocarbons of the type: cyclopentyltoluene, tetralin and indane mixed with tertiary iso-butyl-o-xylol were not well separated under the conditions used. The optimum conditions for the Al₂O₃ separation of the aromatic fractions into monocyclic and bicyclic hydrocarbons were: Oil charge 30 g, column height 2 m, (composed of three parts) the diameter decreasing from 53 mm at the top to 20 mm at the bottom. Iso-octane, benzene and iso-propyl alcohol were used as solvents. The hydrocarbon composition of the 175 - 300°C

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Method of isolating aromatic ...

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S/510/60/014/000/001/006
D244/D307

cut of the Romashinsk crude oil was as follows: Monocyclic aromatics hydrocarbons 13.11 %, bicyclic aromatic hydrocarbons 3.01 %, mixed aromatics 0.7 %, hexamethylene hydrocarbons 6.4 %, pentamethylene hydrocarbons 11.5 %, normal paraffins 17.5 %, iso-paraffins 41.2 % and organic compounds of S 6.58 %. Examination of the uv spectra of the narrow fractions obtained from the broad aromatic fractions having $n_D^{20} = 1.49 - 1.50$ and $1.50 - 1.51$ established that they consist mainly of tetrasubstituted alkylaromatic hydrocarbons. There are 16 figures and 5 tables.

X

Card 3/3

S/O20/60/134/006/020/031
2016/0087

AUTHORS:

Tonchuyev, A. Y., Academician, Mifentova, S. M.,
Kusayev, E. A., Sakar, P. M., Sukhaya, A. A.,
Zubchik, E. Ya., and Cherkova, E. V.

TITLE:

Methods of Isolating Aromatic Hydrocarbons from Medium
(Kerosene) Petroleum Fractions

PERIODICAL:

Doklady Akademi nauk SSSR, 1960, Vol. 134, No. 6,
pp. 1318-1360

TEXT: The authors give the results of an investigation of the hydrocarbon composition of the petroleum fractions in which the aromatic hydrocarbons were chromatographically separated by using two adsorbents. Petroleum samples from the Krasnoki oil field was studied. The benzene fraction, boiling out at 175°C and the asphalt-resin substances were treated. The thus treated petroleum was fractionated in a vacuum apparatus and the corresponding fractions were separated. A characteristic of the fraction 175 - 300°C is described. Among the different methods employed for investigating the chemical composition the chromatographic

Card 1/3

isolation and separation of the aromatic hydrocarbons were dealt with in detail. The authors obtained good results by 2-step chromatography. First, all aromatic hydrocarbons are isolated and separated. Isolation took place from the fraction by displacing the silica gel of type ACM (AK) with ethanol was used as displacing agent. The Yakhaya prior to its use (Ref. 6). Seven fractions of aromatic hydrocarbons with the refractive indices of 1.49 to 1.55 were isolated. The sulfur-containing compounds were removed by oxidation with 2% H₂O₂ solution in glacial acetic acid at 80°. The sulfonides formed were then chromatographically separated on silica gel ACM (AK). The further sharp separation of the thus purified mixture of mono- and bicyclic aromatic hydrocarbons was carried out chromatographically with aluminum oxide (type PV-MY) (cm-MSB) of the Dneprodzerzhinskavod (Dneprodzerzhinskavod) as adsorbent. For this purpose a 2 m high column was used. Compounds: Toluene, benzene, and isopropyl alcohol were used as adsorbents. Under these conditions the monocyclic hydrocarbons can be quantitatively separated from the bicyclic ones. Table 1

Card 2/3

gives the results of the separation of tert.-t-butyl-ortho-xylene from butyl naphthalene and tert.-t-butyl-ortho-xylene from diphenyl. This indicates that the chromatographic separation on silica gel produces much poorer results since in this case a high amount of intermediate amount fractions are formed. Among the above described conditions the best from monocyclic hydrocarbons (referred to the aromatic hydrocarbons) that is 13.1% of the fraction 175-300°C, whereas the figures for the bicyclic were 17.3% and 3.0%, respectively. In conclusion the authors mention further compounds of the fraction described and their total percentage composition. There are 1 table and 6 references: 4 Soviet, 1 US, 1 French, and 2 German.

ASSOCIATION: Institut neftkhemicheskogo sinteza Akademii nauk SSSR
(Institut of Petrochemical Synthesis of the Academy of Sciences, USSR)

SUBMITTED: July 21, 1960

Card 3/3

SUSHELIK, R. YA.

1. 30486-65

ACCESSION NR: Ap5010564

mixture, n-nonadecane for the other). The quantitative content of the individual paraffins, from decane to heneicosane in the 175-350° cut of Royashkin crude, was established. Orig. art. has 6 graphs and 3 tables.

ASSOCIATION: Institut neftekhimicheskogo sinteza im. A. V. Topchiyeva AN SSSR (Institute of Petrochemical Synthesis, AN SSSR)

SUBMITTED: 13 Jan 64

ENCL: 00

SUB CODE: FP, GO

NO REF SOV: 001

OTHER: 004

JPES

Card 2/2

CHOKIN, Stanislav Chokinovich, akad. doktor tekhn. nauk. RZHONDKOVSKAYA, L.S., red.;
KORNETSOV, Yu.N., red.; SUSHCHIKH, I.D., red.; ALFEROVA, P.F.,
tekhn. red.

[Estimated dependable power of hydroelectric power stations]
Raschetnaia obespechenost' raboty gidroelektrostantsii. Alma-Ata,
Izvestiya Akad. nauk Kazakhskoi, SSR, 1958. 269 p. (MIRA 11:8)

1. AN KazSSR (for Chokin).
(Hydroelectric power stations) 4

SUSHCHIKH, I. D.

LYAPICHEV, Georgiy Filippovich; SERGIYEV, N.G., redaktor, doktor
geologo-mineralogicheskikh nauk; RZHONDKOVSKAYA, I.S.,
redaktor; SUSHCHIKH, I.D.; redaktor; BOROKINA, Z.P., tekhnicheskii redaktor.

[Intrusion complexes of the Pre-Paleozoic and Cambrian in
the Boshchekul region (northeastern Kazakhstan)] Intruzivnye
kompleksy dopaleozoya i kembriia Boshchekul'skogo raiona
(Severo-Vostochnyi Kazakhstan). Alma-ata, Izd-vo Akademii
nauk Kazakhskoi SSR, 1955. 134 p. (MLRA 8:11)
(Boshchekul region--Rocks, Igneous)

SOV/124-58-8-8407
Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 8, p 10 (USSR)
AUTHOR: Sushchikh, M.V.
TITLE: The Hunting of a Pressure Reducer (Avtokolebaniya reduktora davleniya)
PERIODICAL: Tr. Leningr. voyen.-mekhan. in-t, 1957, Nr 6, pp 249-260
ABSTRACT: A study is made of the hunting oscillations that develop in a gas-pressure reducer (direct-action pressure regulator) designed to lower and sustain pressure in gas lines. The nonlinear flow-rate characteristics are interpolated by means of polynomials, after which the hunting oscillations are calculated by the harmonic-balance method.
M. A. Ayzerman

Card 1/1

Analysis of the "water-hammer"

S/147/62/000/003/002/007
E191/E435

pressure. To obtain an approximate solution, the equations of motion are transformed into the form of the "telegraph" (transmission line) equation with regard to the water pressure variation. A system of difference equations is derived from this. An experimental installation was constructed: compressed air was admitted into a chamber from bottles via electrically controlled valves. The chamber was placed at the bottom end of a vertical annular pipe, whose top end overflowed into a large tank. A special device was used to measure the velocity of propagation in the water. The device was attached at the bottom end of the annular pipe and consisted of an oil operated piston projecting into the end of the pipe. The piston velocity could be controlled and measured. The water and air pressures were recorded. It was found that disturbances propagate in the water at a speed of 1050 m/sec. Pressure records are reproduced which show satisfactory agreement with analytical results. There are 6 figures.

SUBMITTED: July 8, 1961

Card 2/2

SOV/124-58-10-11131

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 10, p 61 (USSR)

AUTHOR: Sushchikh, N. P.

TITLE: Boxes of Non-circular Cross Section Acting as Water-hammer Dampers (Korobki nekruglogo poperechnogo secheniya kak gasiteli gidravlichesкого udara)

PERIODICAL: Tr. Leningr. voyen. -mekhan. in-t, 1957, Nr 6, pp 242-248

ABSTRACT: The author examines water-hammer dampers having the shape of metal boxes of non-circular cross section. The box is deformed under a water hammer. Damping is explained by the fact that the deformation of the box during water hammer occurs not only as a result of the changes in its perimeter but fundamentally owing to the deflection of its contour. Such dampers are extremely simple in their construction and do not require operational maintenance. An evaluation is given of the damping effect of a metal box of noncircular cross section. A scheme of an experimental installation is presented, together with the results of some experiments. It is noted that the investigation of dampers with variously-shaped cross section has shown that the greatest damping is produced by

Card 1/2

SOV/124-58-10-11131

Boxes of Non-circular Cross Section Acting as Water-hammer Dampers

boxes of rectangular section with sides having a ratio of 0.4 to 0.5. It is pointed out that the inclusion of a damping chamber changes the oscillatory period in a system during water hammer

G. V. Aronovich

Card 2/2

S/147/62/000/003/002/007
E191/E435

AUTHORS: Sushchikh, M.V., Sushchikh, N.P.

TITLE: Analysis of the "water-hammer" effect in scavenging of pipelines for liquids with compressed air

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Aviatsionnaya tekhnika, no.3, 1962, 54-61

TEXT: In the true hydraulic impact ("water-hammer") the pressure rise in the pipe is determined by the piston velocity or the valve closure rate. When a pipeline for liquids is blown through with compressed air the pressure rise depends on the rate of flow of the air and its compressibility. The pressure rise in a pipeline is considered when the pipe is filled with water whilst its open end emerges into a large tank and compressed air is fed into the closed end. The equations of transient motion of a liquid in a pipe of constant cross-section are formulated and the boundary conditions are determined. At the air entry end, the cases of sub-critical and super-critical pressure drops are distinguished. An exact solution is not available owing to the nonlinearity of the boundary condition with regard to the air

Card 1/2

PONOMAREVA, A.T., kandidat sel'skokhozyaystvennykh nauk; SUSHCHIKH, Z.V.

Effectiveness of shallow placement of organomineral mixtures in winter wheat fields. Agrobiologiya no.4:84-88 J1-Ag '56.
(MIRA 9:10)

1. Nauchno-issledovatel'skiy institut zemledeliya Kazakhskogo filiala Vsesoyuznoy Akademii sel'skokhozyaystvennykh nauk imeni Lenina, gered Alma-Ata.
(Kazakhstan--Wheat) (Fertilizers and manures)

KOLYBANOV, V.A.; LOZYUK, N.I.; SAKHAROV, V.G.; SUSHCHINSKAYA, I.Yu.;
BOBROV, V.Ya., kand. ekon. nauk, otv. red.; DENISOVA, V.N.,
red.izd-va; RAKHLINA, N.P., tekhn. red.

[Latin America; political and economic handbook] Latinskaia
Amerika; politiko-ekonomicheskii spravochnik. Kiev, Izd-vo
AN USSR, 1963. 283 p. (MIRA 17:3)

SUSHCHINSKAYA, L.Ya

Dust in the air in the workshops of the Irkutsk Mica Factory.
Vop. bor' s sil. v Sib. no.1:119-121 '61 (MIRA 16:12)

Sushchinskaya, O.

AID P - 2050

Subject : USSR/Aeronautics

Card 1/1 Pub. 58 - 9/17

Author : Sushchinskaya, O.

Title : Parachute jumping from balloons

Periodical: Kryl. rod., 4, 16, Ap 1955

Abstract : The author lists advantages of this kind of parachute jumping. She gives examples of parachute jumping from balloons as done by the Moskva Aeroclub.

Institution: Moskva Aeroclub, DOSAAF

Submitted : No date

D'YACHENKO, P.V.; SUSHCHINSKIY, B.I.

Semiautomatic hygrometer. Trudy CGO no.116:12-29 '61. (MIRA 15:1)
(Hygrometry) (Calibration)

SOV/137-58-7-14346

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 7, p 56 (USSR)

AUTHORS: Mikheyev, V.A., Sushchinskiy, D.A.

TITLE: Water-sealed Electrodes (Gidrouplotneniye elektrodov)

PERIODICAL: Byul. tsvetn. metallurgii, 1957, Nr 10, pp 30-31

ABSTRACT: Good sealing of the interior of electric reduction furnaces is reflected in output per unit time, thermal conditions, internal pressure, electrode service, and the atmosphere of the department. The asbestos-sealed heat-exchanger system formerly employed did not work out. A water-seal type of jacket is proposed. Around the electrode there would be an annular trough with high walls, filled with running water. A hollow, water-cooled annular blade, fastened to the electrode holder, is lowered into this trough. A telescopic device is provided to assure the required motion of the electrodes. As the knife rises, supplementary piping is linked therewith, so that the bottom of the bottom pipe is always in the water.

V.T.

Card 1/1

1. Electric furnaces--Equipment 2. Electrodes--Sealing

SUSHCHINSKIY, D. A.

SOV/138-58-9-16/21

AUTHOR: Ya. Sh.

TITLE: Conference on New Methods of Making Lead (Soveshchaniye po novym metodam polucheniya svintsa)

PERIODICAL: Tsvetnyye Metally, 1958, Nr 9, pp 72 - 75 (USSR)

ABSTRACT: A conference on new methods of lead production from concentrates was held at the Gintsvetmet on June 22-25, 1958. Since the last meeting in 1953, over 20 flowsheets and variants have been tested by various works and organisations and the purpose of the present meeting was to evaluate this work. Pre-prints of the following reports had been circulated: "On Electric Smelting of Lead Raw Materials" by A.P. Sychev, V.A. Mikheyev, D.A. Sushchinskiy of VNIItsvetmet, A.V. Yukov of Kavkazgiprotsvetmet; "On Precipitation and Reaction Smelting of Lead Concentrates" by V.P. Lidov, L.A. Blinova, M.P. Smirnov, L.N. Kudryashova of Gintsvetmet, I.R. Polyvyanny et al. of the Institut metallurgii i obogashcheniya AN KazSSR (Institute of Metallurgy and Beneficiation of the Ac.Sc. KazSSR); "On Hydrometallurgical Treatment" by A.N. Vol'skiy, R.A. Aracheva, A.M. Yegorov, P.S. Titov, F.M. Loskutov and V.S. Levchikov of Mintsvetmetzoloto and A.V. Pomosov, A.I. Levin et al. of the Ural'skiy

02/31/5

Conference on new Methods of Making Lead

SOV/136-58-9-16/21

politekhnicheskii institut (Ural's Polytechnic Institute); on the "Electrolytic Production of Lead by Electrolytes of Fused Salts" by I.G. Gul'din, A.V. Bushinskaya, V.P. Barinova and v.K. Ruppul' of Gintsvetmet and Yu.K. Delimarskiy, I.D. Panchenko, Ye.B. Gitman and A.A. Kolotiy of IONKh Ac.Sc. Ukrainian SSR. The conference was opened by D.M. Yukhtanov, deputy director of Gintsvetmet, who discussed recent progress and noted that predictions that the lead industry would develop in the direction of the hydrometallurgical treatment of flotation concentrates had not been fulfilled; he said that the most highly developed of the new methods were electric smelting and electrolysis of fused material and that pyrometallurgy would retain its importance for a long time. In the discussion that followed, D.M. Chizhikov, corresponding member of the Ac.Sc. USSR, systematized and reviewed all known processes. P.A. Pozdnikov and A.A. Vlasova of UFAN described methods of treatment developed there; the high effectiveness of which was doubted by v.A. Karchevskiy of Giprotsvetmet and S.I. Sobol' of Gintsvetmet.

01182/5

Conference on new Methods of Making Lead

SOV/136-58-9-16/21

A.M. Zykov of the Leningrad Polytechnic Institute criticised the reports presented as being insufficiently analytical. G.P. Vyatlev of the Ukrtsink Works recommended the adoption of electric instead of shaft smelting of secondary lead materials at the works. A.N. Vol'skiy, Corresponding Member of the Ac.Sc. of the Mintsvetmetzoloto described work he had directed there on sulphide oxidation and recommended more attention to safety aspects. v.F. Fedorov of the GNTK USSR drew attention to the comparative lack of work in the Soviet lead industry on new methods, but opposed the proposal by Gintsvetmet to build a new, large electric furnace at the Leninogorsk Works. P.I. Kravchenko of the Elektrotsink Works deplored the incompleteness of all the work reported at the conference. A.M. Lomov of Kavkazgiprotsvetmet considered the adoption of electric smelting of lead concentrates and I.D. Panchenko of IONKh of the Ac.Sc. Ukrainian SSR with electrolysis of fused salts. F.M. Loskutov, Professor, Doctor of Technical Sciences of Mintsvetmetzoloto reminded the conference that electric smelting is not applicable to all materials and disagreed with Kostin's suggestion that all Soviet works should be converted to

Card3/5

Conference on New Methods of Making Lead SOV/136-58-9-16/21

this practice; he also spoke against alkali treatment of lead-containing materials - a view opposed by G.G. Zapevalov of the Irkutskiy Gorno-metallurgicheskiy institut (Irkutsk Mining-metallurgical Institute) who also stressed the need for economic evaluation. M.A. Chernyak of Giprotsvetmet doubted whether electric smelting could revolutionise the lead industry and urged more research on the alkali process and sintering. I.V. Paramonov of the Gosplan of the KazSSR criticised the research work reported but D.N. Klushin of Gintsvetmet said that this work had gone a long way to realise the aims set out at the previous conference though much effort had been wasted. Many speakers deplored the lack of central direction of research work. After putting on record their views on the proposed methods, the conference decided that effort should be concentrated on the study and development of

- a) electric smelting of primary lead raw materials without added fluxes and electric smelting of secondary materials;
- b) electrolysis of lead concentrates in fused electrolytes (for the rich materials of the "Elektrotsink" and Sikhali Works);
- c) electrolytic refining of lead in aqueous

2024/5

ACC NR: AR6035373

SOURCE CODE: UR/0271/66/000/009/B037/B037

AUTHOR: Proshakov, V. V.; Sushchinskiy, I. M.

TITLE: Choice of estimating criteria for logic elements in digital computers constructed with semiconductor devices

SOURCE: Ref. zh. Avtomatika, telemekhanika i vychislitel'naya tekhnika, Abs. 9B292

REF. SOURCE: Tr. Mosk. in-ta elektron. mashinostr., vyp. 1, 1965(1966), 214-227

TOPIC TAGS: computer design, computer logic, logic circuit, transistorized circuit, computer technology, *digital computer, semiconductor device*

ABSTRACT: In the design of digital computers and automation devices one encounters frequently the problem of choosing a system of elements which is optimal with respect to the electric parameters and logical capabilities, as well as from the point of view of construction and economy, and on the basis of which it is possible to construct equipment that satisfies most fully the specified technical requirements. The lack of any established criteria and estimating methods for an exhaustive analysis of the presently existing systems makes this choice a complicated problem. Criteria are spelled out and estimating methods are proposed for systems of semiconductor logic elements, the use of which facilitates the choice of a system satisfying most fully the technical requirements imposed on the developed apparatus (with allowance for various electrical, logical, and other characteristics, and also for the construction, technology

Card 1/2

UDC: 681.142.67:621.382

YEFREMOV, Tamir Filippovich; SUSHCHINSKIY, Mikhail Mikhaylovich; VASIL'YEV,
A.K., inzh., retsenzent; DUGINA, N.A., tekhn. red.

[The KAVZ-651A motorbus; construction and operation] Avtobus KAVZ-
651A; ustroistvo i ekspluatatsiia. Moskva, Gos. nauchno-tekhn. izd-
vo mashinostroit. lit-ry, 1961. 350 p. (MIRA 14:11)
(Motorbuses)

SUSHCHINSKIY, M. M.

SUSHCHINSKIY, M. M.

Compt. rend. acad. sci. URSS 33, 18-21 (1941) - in French

GA: 37-1930/4

The intensity of the dispersion rays (Raman spectra) caused by
molecular linkages, in solutions, as a function of their concentrations.

SUSHOHINSKIY, M. M.

Candidate of Physico-Mathematical Sci.

"Molecular Analysis by the Method of Combination Light Scattering
(Raman Spectra)." Sub 24 Nov 47, Physics Inst imeni P. N. Lebedev, Acad
Sci USSR

Dissertations presented for degrees in science and engineering in
Moscow in 1947

SO: Sum No. 457, 18 Apr 55

SUSHCHINSKIY, M. M.

PA 28185

USSR/Physics

Jul/Aug 1947

Spectral Lines
Paraffins - Spectrum Analysis

"Intensity and Polarization of Composite Dispersion Lines of the CH Group in Paraffins," M. M. Sushchinskii, 4 pp

"Iz Ak Nauk, Ser Fiz" Vol XI, No 4 pp. 341-44

This article discusses measurements for a series of normal paraffins, in which it appeared to be easier to discover some regularity. Photometry was used to measure the intensity, however, some difficulty was met in that the lines were very close. The article has comments made by M. V. Vol'kenshteyn (GOI, Leningrad), and I. S. Mayants (FTAN, Moscow). Submitted

USSR/Physics (Cont'd)

Jul/Aug 1947

at the Institute of Physics imeni P. N. Lebedev, Academy of Sciences of the USSR.

28185

PHOTOMETRIC AND SPECTROSCOPIC METHODS

INDEX

4

A photometric method of determination of the form and width of spectral lines. M. M. Sushchinskii. *Bull. Acad. Sci. (U.S.S.R., Ser. phys.)* 11, 348-52(1947). -A

A simplified method has been developed to det. the width of the exciting line and the width of dispersion lines from the measurement of their intensities at different slit widths of the spectrograph. It is shown theoretically that in the case of slit illumination by light concd. through a condenser lens the intensity can be represented by the formula $I = A(y) = \pi \int_{y-a}^{y+a} (\sin^2 x/x) dx$, where y is the coordinate in the image plane and $a = (\pi/2)(S/S_0)$ (S slit width, S_0 "normal" slit width). By combining this formula with a function $\phi(x)$ for the actual distribution of intensities in the line a graph can be established and it is possible by measurements of intensities at different widths to find the parameter of the function $\phi(x)$. The author compared his measurements on Hg, benzene, and CCl₄ lines with measurements made with a more exact interferometric method and found good agreement. S. P.

METALLURGICAL LITERATURE CLASSIFICATION

INDEX

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

SUSHCHINSKIY, M. M.

PA 19/49T93

USSR/Physics
Light - Dispersion
Analysis

Sep/Oct 48

"Fundamentals of Quantitative Molecular Analysis
Based on the Method of Combined Dispersion of Light,"
M. M. Sushchinskiy, Phys Inst imeni P. N. Lebedev,
Acad Sci USSR, 5¹/₂ pp

"Iz Ak Nauk SSSR, Ser Fiz" Vol XII, No 5

Method is increasing in importance, especially in
field of organic chemistry. Discusses apparatus
used and sensitivity of method.

19/49T93

CA

3

• Quantitative molecular analysis based on Raman scattering of light. M. M. Sushchinskii (Acad. Sci., U.S.S.R.), *Izv. Akad. Nauk S.S.S.R., Ser. Fiz.* 12, 507-72 (1948). A comparison is made between photographic and photoelec. measurements. The data by Rank and Wiegand (C.I. 40, 4015) are in agreement with photographic data on cyclohexane and benzene for broad lines and in disagreement for narrow lines; this is attributed to the size of slits. Measurement of the width of the line intensity is complicated by the variation of the width of the line due to changes in lamps or their operation. For photographic measurements the intensity of the line should be equal to, or less than, 0.1 of the background intensity and this establishes the min. analyzable concn. in each case.

S. Paksver

Phys. Inst. in Leningrad

CA

7

The fundamentals of quantitative analysis for molecular components by means of Raman spectra. M. M. Sushchinskii, *Zerodskaya Lab.* 14, 1070-9 (1948).—Rank's data on Raman intensities (*C.A.* 40, 4015⁹) apply to results obtained photographically only for wide lines, since R.'s figures represent intensity max. The intensity ratios of narrow to wide lines are affected by changes in the width of the exciting line. The principles of photographic photometry, including the effects of background, are reviewed as they apply to Raman spectra. Cyrus Feldman

1. SUSHCINSKIY, M. M.
2. USSR (600)
4. Physics and Mathematics
7. Introduction to Molecular Spectral Analysis. By V. M. Chulanovskiy. (Moscow-Leningrad, State Technical Press, 1950). Reviewed by M. M. Sushcinskiy. Sov. Kniga, No. 7, 1950.

9. Report U-3081, 16 Jan. 1953. Unclassified.

SUSHCHINSKIY, M.M.

Molecular analysis by the Raman spectrum method.
M. M. Sushchinskii. *Dokl. Fiz. Inst. Akad. Nauk
S.S.S.R.* 5, 185-200 (1958); cf. *C.A.* 44, 4314; 45, 4597g.
A new method is described for measuring the intensity of
Raman lines. This consists in photographing the Raman
spectrum simultaneously with the fluorescent spectrum
which has been excited by the same source. The intensity
of the lines is measured photometrically. Knowing the
energy distribution for the fluorescent spectrum, all of the
intensities can be expressed in the same units. Under these
conditions the intensity of the Raman lines does not depend
upon the geometry of the app. or the illumination but is
characteristic of the mol. being studied and to a great ex-
tent is proportional to concn. of the mol. in mixts. This
method can be used for quanti. mol. analysis. J. R. I.

CA

3

Photoelectric photometer for research on Raman spectra and its use for analytical purposes. M. M. Sushchinskii (Lebedev Phys. Inst. Akad. Sci. U.S.S.R.), *Izv. Akad. Nauk S.S.S.R., Ser. Fiz.* 14, 367-92 (1950). The intensity of Raman lines is compared to the intensity of the exciting 4350-A. Hg line. The stability of the apparatus is demonstrated on consecutive photographs of Raman lines. Control tests on cyclohexane and C₆₀ lines were made under the same test conditions as used by Rank and Wiegand (cf. *C.A.* 40, 4616) and are in satisfactory agreement with their results. Thus Rank's data could be applied to the quant. analysis of carbohydrate mixts. The "effective width" of the lines $\alpha = I_{\lambda}/I_0$ can be normalized by comparing them to known widths of the 992 cm.⁻¹ C₆₀ line ($\alpha = 1.8 \text{ cm.}^{-1}$) and the 812 cm.⁻¹ cyclohexane line ($\alpha = 1.9 \text{ cm.}^{-1}$). The widths of lines thus obtained photographically are compared to the same widths obtained photometrically and are found to be in good agreement.

S. Pakswar

1951

CA

3

Photoelectric method of investigation of Raman spectra.
M. M. Sushchinskii (Acad. Sci. U.S.S.R.). *Zhur. Ekspil. Teorel. Fiz.*, 20, 304-17(1950).—Detailed description of the construction and operation of a recording photoelectric spectrograph for the measurement of intensities of Raman lines. The mean fluctuation of the photocurrent is of the order 3×10^{-13} amp., the threshold of sensitivity 1.2×10^{-11} amp., i.e. 2% of the intensity of the 802-cm.^{-1} line of cyclohexane. In terms of flux, the sensitivity is 2.4×10^{-13} lumen, or 10^{-13} w. The method is applied to measurements of the intensities of the lines of cyclohexane and of benzene, relative to that of the 802-cm.^{-1} line taken = 250. For the cyclohexane lines 802, 1020, 1158, 1207, 1348, 1445 cm.^{-1} , the integral intensities I_a of the lines are 250, 210, 80, 170, 65, 230, the intensities I_b in the center of the lines, 250, 88, 16, 72, 13, 65. For benzene, lines 606, 846, 992, 1176, 1560, 1645 cm.^{-1} , $I_a = 170, 40, 1130, 200, 210, 210$, $I_b = 78, 18.5, 1260, 122, 65, 48$. The ratio of I_a and I_b is a measure of the width of the line, compared with that of cyclohexane 802. N. Thon

SUSHCHINSKIY, M. M.

PA 159T97

USSR/Physics - Combination Scattering Apr 50
Photoelectric Equipment

"Photoelectric Method of Studying the Spectra of
Combination Scattering of Light," M. M. Sushchin-
skiy, Phys Inst imeni Lebedev, Acad Sci USSR, 13 pp

"Zhur Eksper i Teoret Fiz" Vol XX, No 4

Describes recording photoelectric spectrograph
used for investigating spectra of combination
scattering of light. Studies accuracy and sensi-
tivity of photoelectric method. Gives example of
its application to measurement of intensities for
certain lines of combination scattering. Submitted
5 Apr 50.

159T97

S.A.

Sect. A

Optics

535.375.5.08

5042. Reply to the letter of L. G. Federovich and Ya. S. Beberich in connection with M. M. Sushchinskii's paper. M. M. Sushchinskii, *Zh. Eksp. Teor. Fiz.*, 30, 1141-2 (No. 11, 1956) in Russian.

See preceding abstract. The author believes that the manufacture of very wide and very high slits compatible with long-focal-distance optics in the investigation of Raman spectra presents great technical difficulties; for a normal slit height (15-20 mm), a collimator with a relative aperture 1 : 2.5 is required (e.g., achromatic lens, diam. 50 mm, focal distance 120 mm).

F. LACOMAN

CA

3

A recording photoelectric spectrograph for the investigation of Raman spectra. M. M. Sushchinskii. *Doklady Akad. Nauk S.S.S.R.* 70: 221-4(1950); cf. *C.A.* 44, 0275d.—A monochromator synchronized with a recorder scans the spectrum near the Hg line. Because of the a.-c. component in the original illumination, the signal furnished by the photomultiplier-amplifier system is passed through a synchronous detection circuit before being fed to the galvanometer and recorder. This minimizes the effects of changes in the frequency of the power supply. C. F.

SUSHCHINSKIY, M. M.

Sep/Oct 53

USSR/Physics - Raman Spectra

"Characteristic Line in the Raman Spectra of Hydrocarbons," M. M. Sushchinskiy, Phys Inst im Lebedev, Acad Sci USSR

Iz Ak Nauk, Ser Fiz, Vol 17, No 5, pp 608-616

For studying of characteristic lines author uses, besides usual parameters, the width of lines, which gives data on extinction of self-excited oscillations of molecules. Method of measurements was previously described by author (Izv AN, Ser Fiz 14 [1950]; ZhETF 22 [1952]). Results are tabulated. Indebted to G. S. Landsberg.

274792

SUSHCHINSKIY, M. M.

Transformation of the observed outline of Raman spectrum line into the true one. M. M. Sushchinskiy, Zh. teoret. i eksper. fiz., 25, No. 1, 1955

Presented is a general solution of the equation... where I is the intensity... The results of calculation are used for finding the true outlines of Raman lines in some particular cases.

BP

USSR/Physics - Molecular Spectra

Jun 52

"Width of Lines in Spectra of Combination Scattering/Raman Effect/ of Some Hydrocarbons. I," M. M. Sushchinskiy, Phys Inst Imeni Lebedev, Acad Sci USSR

"Zhur Eksper i Teoret Fiz" Vol XXII, No 6, pp 755-767

Describes a method of evaluating the width of lines which is based on comparison of integral intensities and intensities in the max of the lines. Applies

21798

this method to the study of line width in spectra of paraffins. Establishes a close relation between line width and other characteristic parameters. Gives a method of passing from photometric line widths to intensities in the max of the lines. Indebted to Acad. G. S. Landsberg. Received 3 Oct 52.

21798

SUSHCHINSKIY, M. M.

SUSHCHINSKIY, M.M.

Chemical Abstracts
May 25, 1954
Electronic Phenomena
and Spectra

③
Catalog of Raman spectra of individual carbohydrates.
G. S. Landsberg, P. A. Bazhulin, and M. M. Sushchinskii.
Izvest. Akad. Nauk S.S.S.R., Ser. Fiz. 17, 604-7(1953).
Preview of a catalog contg. the frequencies, the max. in-
tensities, and the integral intensities, effective width,
polarization, and photographs of the spectrum of 100 car-
bohydrates in detail and further 150 carbohydrates with
less detail. S. Paksver

[Handwritten signature]
5/20/54

SUSHCHINSKIY, M. M.

Sep/Oct 53

USSR/Physics - Raman Spectra

"Chart of Raman Spectra of Individual Hydrocarbons,"
G. S. Landsberg, P. A. Bazhulin and M. M. Sushchin-
skiy, Phys Inst im Lebedev, Acad Sci USSR

Iz Ak Nauk, Ser Fiz, Vol 17, No 5, pp 604-607

Informed the Conference on Spectroscopy (Moscow, 2-10 July 1952) that a chart of Raman spectra of individual hydrocarbons is under preparation, awaiting criticism and eventual modifications. The chart contains the following groups of hydrocarbons: Paraffins, including all isomers, naphthenes, aromatic hydrocarbons and some olefins. The work was completed with assistance of Inst of Org Chem, Acad Sci USSR headed by B. A. Kazanskiy.

274T98

SUSHCHINSKIY, M.M.

Chemical Abstracts
 May 25, 1954
 Electronic Phenomena
 and Spectra

① Characteristic lines in Raman spectra of hydrocarbons. M. M. Sushchinskii. *Izvest. Akad. Nauk S.S.S.R.*, Ser. Fiz. 17, 608-16 (1953).—Parameters characteristic of compds. are line frequencies ($\Delta\nu$), intensity (I_{ν}), depolarization ρ , and width of lines δ . These data are tabulated for 10 compds. contg. a C-C(C)-C chain: 2,2-dimethylbutane, 2,2-dimethylpentane, 3,3-dimethylpentane, 2,2,3-trimethylbutane, 2,2-dimethylhexane, 3,3-dimethylhexane, 3-methyl-3-ethylpentane, 2,2,3-trimethylpentane, 2,2,4-trimethylpentane, and 4-methyl-4-ethyl-1-hexene, for 5 compds. with a C-C(C)-C(C)-C structure: 2,3-dimethylbutane, 2,3-dimethylpentane, 2,3-dimethylhexane, 3,4-dimethylhexane, and 2,3,4-trimethylpentane; 6 compds. with C:C bond (line 1600 cm^{-1} only): 1-pentene, 1-hexene, 1-heptene, 1-octene, 1-undecene, and 4-methyl-4-ethyl-1-hexene. The parameters of line 1000 cm^{-1} are plotted for cyclic hydrocarbons: cyclopentane, methylcyclopentane, ethylcyclopentane, propyl-, butyl-, and amylcyclopentane; for benzene, toluene, ethylbenzene, and propylbenzene. The characteristics of the following derivs. of cyclopentane are tabulated: 1,1-dimethyl-, 1-methyl-1-ethyl-, 1,1,2-trimethyl-, 1,1,3-trimethyl-, *cis*-1,2-dimethyl-, *trans*-1,2-dimethyl-, *cis*-1-methyl-2-ethyl-, *cis*-1,3-dimethyl-, *trans*-1,3-dimethyl-, *trans*-1-methyl-3-ethyl-, 1-methyl-3-propyl-, *cis,trans,cis*-1,2,4-trimethyl-, and *cis,cis,trans*-1,2,4-trimethylcyclopentane. The data of the following benzene derivs. are also recorded: benzene, toluene, ethyl-, propyl-, hexyl-, 1,2-dimethyl-, 1-methyl-2-ethyl-, 1,2-diethyl-, 1-methyl-2-propyl-, 1,3-dimethyl-, 1-methyl-3-ethyl-, 1,3-diethyl-, 1-methyl-3-propyl-, 1,4-dimethyl-, 1-methyl-4-ethyl-, 1,4-diethyl-, and 1-methyl-4-propylbenzene. The dependence of the characteristic properties on constitution is discussed. S. Pakswar

2

10/11/54

SUSHCHINSKIY, M. M.

U S S R .

Determination of individual hydrocarbons in gasolines by the combined method. V. Gasoline from Emba crude oil. B. A. Lazanskiy, G. S. Landsberg, A. F. Plate, F. A. Bazhulin, A. L. Liberman, Ye. A. Mikhaylova, M. M. Sushchinskiy, G. A. Tarasova, S. A. Ukholin, and S. V. Voron'ko (U. D. Zelinskiy Inst. Org. Chem., Acad. Sci. U.S.S.R., Moscow). Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk 1954, 856-77; cf. C. A. 48, 1470h. --Analysis of a gasoline from Emba crude oil by a combination of distn., chromatography, and dehydrogenation-hydrogenation reactions resulted in establishing the structure of 81.1% of the hydrocarbons present. The gasoline is of naphtheic type, and the Paraffins are predominantly branched. The following compds. were identified: 2,2-dimethylbutane, 2,3-dimethylbutane, 2-methylpentane, 3-methylpentane, hexane, methylcyclopentane, 2,2-dimethylpentane, 2,4-dimethylcyclopentane, cyclohexane, 3,3-dimethylpentane, 1,1-dimethylcyclopentane, 2,3-dimethylpentane, cis- and trans-1,3-dimethylcyclopentanes, trans-1,2-dimethylcyclopentane, methyl- and ethylcyclohexanes, 1,2,4-trimethylcyclopentane, 2,2- and 2,4-dimethylhexanes, 1,2,3-trimethylcyclopentane, 3- and 4-methylheptane, 1,1-dimethylcyclopentane, 1,1,3-trimethylcyclohexane, 3- and 4-methyloctanes, EtPh and o-, m-, and p-xylenes were also identified, m-xylene being the predominant aromatic hydrocarbon.

G. M. Kosolapoff

SUSCHINSKIY, N. M.

USSR/ Chemistry

Fuels

Card

: 1/1

Authors

: Kazanskiy, B. A., Landsberg, G. S., Plate, A. F., Bazhulin, P. A.,
 Liberman, A. L., Suschinskiy, N. M., Tarasova, G. A., Ukholin, S. A.,
 Voron'ko, S. V.

Periodical

: Combined method for the determination of the individual hydrocarbon
 composition of gasolines. Part 4.- Gasoline from the Tuymazinsk
 petroleum.
 Izv, AN SSSR, Otd. Khim. Nauk., 3, 456 - 469, May - June 1954

Abstract

: The results obtained from the study of the individual hydrocarbon com-
 position of gasoline with end point of 150°, derived from low-sulfur
 Tuymazinsk petroleum (Devonian horizon), are described. The quanti-
 tative, individual hydrocarbon composition of Tuymazinsk gasoline
 and the general losses are presented in percentage by weight values.
 The structure of paraffin-base gasoline derived from Tuymazinsk
 petroleum and the aromatic contents of other hydrocarbons are
 discussed. Toluene and m-xylene were found to be predominant among
 aromatic hydrocarbons. Four USSR references. Tables, graphs.

Institution

: Acad. of Sc. USSR, The P. N. Lebedev Physics Institute

Submitted

: July 20, 1953

SUSHCHINSKIY, M. M.

USSR/Physics - Spectral analysis

Card 1/1 Pub. 43 - 19/62

Authors : Bazhulin, P. A.; Rautsian, S. G.; Sokolovskaya, A. I.; ~~Sushchinskiy, M. M.~~

Title : Methods of studying the widths of combined light diffusion lines

Periodical : Izv. AN SSSR. Ser. fiz. 18/6, 678-679, Nov-Dec 1954

Abstract : The results obtained during the study of various methods for measuring the width and contour of combined light diffusion lines are briefly outlined. The possible distortion factors which may effect the width and form of the lines are listed. It is shown that the distorting effect of each of the factors depends not only upon the width but also the form of the test mechanism functions as well as the form of the diffusion lines investigated. Three USSR references (1941-1953). Table.

Institution : Acad. of Sc., USSR, The P. N. Lebedev Phys. Inst.

Submitted :

SUSHCHINSKIY, M.M.; TYULIN, V.I.

Investigation of the degree of depolarization lines in Raman spectra of hydrocarbons with conjugate double bonds. Dokl. AN SSSR (MLRA 7:3)
95 no.3:505-508 Mr '54.

1. Fizicheskiy institut im. P.N.Lebedeva Akademii nauk SSSR.
Predstavleno akademikom G.S.Landsbergom.
(Raman effect) (Hydrocarbons)

FD-325

Sushchinsky, M. M.
USSR/Physics - Raman spectra

Card 1/1 Pub. 146 - 12/44

Author : Bazhulin, P. A.; Rautian, S. G.; Sokolovskaya, A. I.; Sushchinskiy, M. M.

Title : Methods for the investigation of the width of lines of combination scattering of light and their application

Periodical : Zhur. eksp. i teor. fiz., 29, No 6(12), Dec 1955, 822-829

Abstract : A consideration of the influence of various factors upon the observed width of combination-scattering lines, and a description of methods for the exclusion of these factors' influence upon the results of measurements. The authors present the results of measurements of the width of a number of combination-scattering lines in a prismoid spectrograph with large dispersion. They compare the obtained data with data found by other methods. The authors thank Academician G. S. Landsberg for his advice and Kh. Ye. Sterin, V. T. Aleksanyan for the preparation of the data. Seventeen references: e.g. Kh. Ye. Sterin, Dissertation, Physical Institute im. P. N. Lebedev, Acad. Sci. USSR, 1949.

Institution : Physical Institute imeni P. N. Lebedev, Academy of Sciences USSR

Submitted : July 15, 1954

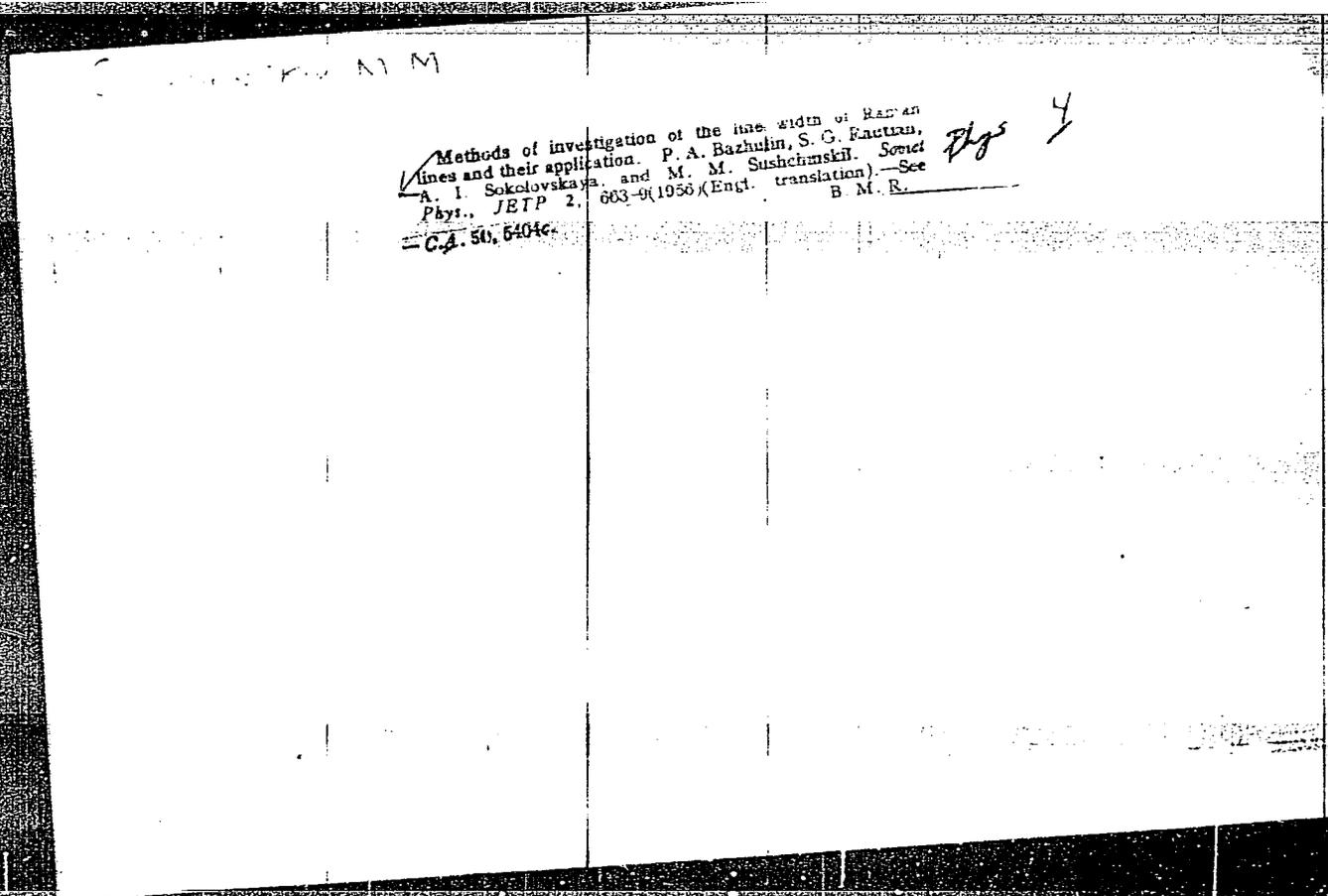
LANDSBERG, G.S., akademik; BAZHULIN, P.A.; SUSHCHINSKIY, M.M.; GUROV, K.P..
redaktor izdatel'stva; KISELEVA, A.A., tekhnicheskiy redaktor

[Basic parameters for Raman spectra of hydrocarbons] Osnovnye
parametry spektrov kombinatsionnogo rasseianiia uglevodorodov.
Moskva, Izd-vo Akademii nauk SSSR, 1956. 340 p. (MIRA 9:8)
(Raman effect) (Hydrocarbons--Spectra)

MARKOVA, S.V.; BAZHULIN, P.A.; ~~SUSHCHINSKIY, M.M.~~

Optical method for investigating hydrocarbons. Raman spectra
of unsaturated hydrocarbons. Opt. 1 spektr. 1 no.1:41-53 My '56.
(MLSA 9:11)

1. Fizicheskiy institut imeni. P.N.Lebedeva AN SSSR.
(Hydrocarbons--Spectra)



SUSHCHINSKIY, M. M. Doc Phys-Math Sci -- (diss) "The Spectra of
Combination Scattering and the Structure of Hydrocarbons."
Mos, 1957. 16 pp 22 cm. (Academy of Sciences USSR, Physics
~~XXXXX~~ Inst im P. N. Lebedev), 125 copies (KL, 25-57, 108)

9 3 -

SUSHCHINSKIY, M. M.

ПРИКОТ'КО, А. Ф.

24(7) p.3 PHASE I BOOK EXPLOITATION SOV/1365

L'vov. Universytet

Materialy k Vsesoyuznogo soveshchaniya po spektroskopii. t. 1: Molekulyarnaya spektroskopiya (Papers of the 10th All-Union Conference on Spectroscopy. Vol. 1: Molecular Spectroscopy) [L'vov] Izd-vo L'vovskogo univ-ta, 1957. 499 p. 4,000 copies printed. (Series: Its: Fizichnyy zbirnyk, vyp. 3/8/)

Additional Sponsoring Agency: Akademiya nauk SSSR. Komissiya po spektroskopii. Ed.: Jazer, S.L.; Tech. Ed.: Saranyuk, T.V.; Editorial Board: Landsberg, G.S., Academician (Resp. Ed., Deceased), Neporent, B.S., Doctor of Physical and Mathematical Sciences, Fabelinskiy, I.L., Doctor of Physical and Mathematical Sciences, Fabrikant, V.A., Doctor of Physical and Mathematical Sciences, Korotkiy, V.G., Candidate of Technical Sciences, Rayskiy, S.M., Candidate of Physical and Mathematical Sciences, Klimovskiy, L.K., Candidate of Physical and Mathematical Sciences, Miliyanchuk, V.S., Candidate of Physical and Mathematical Sciences, and Glauberman, A. Ye., Candidate of Physical and Mathematical Sciences.

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Card 8/30

SUSCHINSKIY, M. M.

Calculation and interpretation of vibrational spectra of rotational isomers of butane. R. I. Podkovchenko and M. M. Suschinskiy. *Optika i Spektroskopiya*, No. 1, 1957. -- Vibrational frequencies were calcd. with the method of Elyashevich (cf. *Dissertation*, Phys. Inst. Acad. Sci. Moscow, 1954; C.A. 35: 275²; 36: 808², 6900⁴) and Stepanov (C.A. 42: 3228²) for I, II, III, and IV isomers of butane. The calcd.

2

Phys

CH. Bi. H. H. H.

in liquid and vapor phases. This was in agreement with
 previous observations (cf. Sheppard and Sasz, *C.A.B.*,
 1957; Wolkenstein, *et al.*, *Vibration of Molecular Ions*
 Moscow, State Publ. Tech. Lit.). A comparison of the
 with the exper. data showed, contrary to

the asym. frequency of core of ... line of the
 region was the most intense ... the H ...
 Raman spectrum ... usually ascribed to ...
 The ... frequencies ... belonged to ...

SUSHCHINSKIY, M.M.

30-12-33/45

AUTHOR:

None given

TITLE:

Defense of Dissertations (Zashchita dissertatsiy) (January - July 1957) (Yanvar' - iyul' 1957 g) Section of Physical-Mathematical Sciences (Otdeleniye fiziko-matematicheskikh nauk)

PERIODICAL

Vestnik AN SSSR, 1957, Vol. 27, Nr 12, pp. 109-111 (USSR)

AVSTRACT:

In the Institute for Physics imeni P. N. Lebedev (Fizicheskiy institut imeni P. N. Lebedeva) the following applications for the degree of Doctor of Physical-Mathematical Sciences: A. A. Kolomenskiy - Investigation of the Theory of the Motion of Particles in Modern Cyclical Accelerators (Issledovaniya po teorii dvizheniya chastits v sovremennykh tsiklicheskiy uskoritel'yakh). P. E. Nemirovskiy - The Theory of the Scattering of Neutrons by Nuclei (Teoriya rasseyaniya neytronov yadrami). M. M. Sushchinskiy - Spectra of Combination Scattering and the Structure of Hydrocarbons (Spektry kombinatsionnogo rasseyaniya i stroyeniye uglevodorodov). Applications for the degree of Candidate of Physical-Mathematical Sciences: Yu. M. Ado - The Incoherent Radiation of the Electrons Moving in a Synchrotron and Some of Their Applications (Nekogerentnoye izlucheniye elektronov,

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Defense of Dissertations (January - July 1957)
Section of Physical-Mathematical Sciences

dvizhushchikhsya v sinkhrotrone, i nekotoryyeyego primeneniya). A. V. Gurevich - Some Questions Connected with the Theory of the Propagation of Powerful Radiowaves in the Plasma (Nekotoryye voprosy teorii rasprostraneniya sil'nykh radiovoln v plazme). D. A. Kirzhnits - On the Statistical Theory of Numerous Particles (K statisticheskoy teorii mnogikh chastits). V. M. Likhachev - Sign- and Momentum-Analysis of Relative Particles by Means of Nuclear Photo-emulsion in the Magnetic Momentum Field (Znakovyy i impul'snyy analiz relyativistskikh chastits metodom yadernykh fotoemul'siy v impul'snom magnitnom pole). A. I. Nikishov - Statistical Theory of the Formation of Particles at High Energies (Statisticheskaya teoriya obrazovaniya chastits pri bol'shikh energiyakh). Yu. M. Popov - The Scattering of π -Mesons by Nucleons in the Semiphenomenological and in the Highest Approximation of the Tamm-Dankov Method (Rasseyaniye π -mezonov na nuklonakh v polufenomenologicheskoy teorii i v vysshem priblizhenii metoda Tamma-Dankova). S. G. Rautian Reduction Theory Concerning the Ideal Spectral Apparatus (Teoriya reduktsii k ideal'nomu spektral'nomu priboru). V. D. Rusanov - Investigation of the Injection Effect on the

Card 2/4

30-12-33/45

Defense of
Section

Dissertations (January - July 1957)
of Physical-Mathematical Sciences

Betatron (Issledovaniye effektivnosti inzhetskii v betatron).
 Yu. K. Khokhlov - Investigation of the Theory of the Nuclear
 Photoeffect (Issledovaniya po teorii yadernogo fotoeffekta).
 In the Main Astronomical Observatory (Glavnaya
 astronomicheskaya observatoriya) Applications for the degree
 of Doctor of Physical-Mathematical Sciences: S. V. Drozdov -
 The Determination of Exact Declinations and Broad
 Fluctuations by Means of the Zenith Telescope According to
 the Zenith Program (Opredeleniye tochnykh skloneniy i
 kolebaniy shiroty posredstvom zenit-teleskopa po zenitnoy
 programme). Sh. T. Khabibullin - The Physical Libration
 of the Moon (Investigation of the physical libration of the
 moon by the photographic method and derivation of the
 parameter from the heliometric observations made in Kazan
 (Fizicheskaya libratsiya Lunny (Issledovaniye fizicheskoy
 libratsii Luny fotograficheskim sposobom i vyvod parametra
 f iz kazanskikh geliometricheskikh nablyudeniy).
 Applications for the degree of Candidate of Physical-
 Mathematical Sciences: V. T. Gontkovskaya - The Application
 of Modern Computation Technique in the Analytical Method

Card 3/4

Defense of Dissertations (January - July 1957)
Section of Physical-Mathematical Sciences

30-12-33/45

of Sky Mechanics (Primeneniye sovremennoy vychislitel'noy tekhniki v analiticheskikh metodakh nebesnoy mekhaniki).
E. Ye. Dubov - The Peculiar Features of Internal Motions and of the Luminescence of Quiet Protuberances (Osobennosti vnutrennikh dvizheniy i svezheniya spokojnykh protuberantsev). V. I. Ivanikov - On the Methods of the Photographic Photometry of Meteors (O metodakh fotograficheskoy fotometrii meteorov).

AVAILABLE: Library of Congress

1. Physics 2. Astronomy

Card 4/4

Application of Combination Light Scattering to the Investigation
of the Composition and Structure of Substance

53-2-4/9

cesses occurring on the occasion of the interaction of a light wave with a molecule, have an influence on the spectra of combination scattering.

Spectra of combination scattering of the complicated polyatomic molecules having several characteristic structure elements, in many cases are produced by an additive superposition of the spectra of the separate structure elements. This is discussed more exactly at the example of different groups of paraffins. The study of the rotation isomerism of paraffins proves to be very interesting. Experimental examination of the oscillation spectra permits the determination of the totality of the oscillation frequencies, from which the force constants of the molecule under investigation can be computed.

The molecular analysis by means of the application of the spectra of combination scattering of light: This analysis is based on the fact, that the spectrum of the combination scattering is an individual optical characteristic of the molecule. The development of this combination scattering is especially important for organic chemistry. There are 1 figures, 4 tables and 56 references, 48 of which are Slavic.

Card 2/3

SOV/48-22-9-13/40

AUTHOR: Sushchinskiy, M. M.,

TITLE: Investigation of the Vibration Spectra in the Range of the Valence Oscillations of CH (Issledovaniye kolebatel'nykh spektrov v oblasti valentnykh kolebaniy CH)

PERIODICAL: Izvestiya Akademii nauk SSSR, Seriya fizicheskaya, 1958, Vol 22, Nr 9, pp 1063 - 1067 (USSR)

ABSTRACT: In the present paper the experimental and theoretical investigations of the spectra of combination scattering and of the infrared spectra in the range of the valence oscillations of CH of some hydrocarbons are given. An experimental examination of the concerned range is very difficult because a high number of closely arranged lines which partly overlap occurs. The problem to which group the observed lines belong cannot be solved by purely theoretical means. Therefore a comparison of all these parameters for a number of related compounds is of great importance for the interpretation of these lines. This method makes possible a more or less reliable classification of the observed lines to any of the

Card 1/3

Investigation of the Vibration Spectra in the Range of SOV/48-22-9-13/40
the Valence Oscillations of CH

groups in question (Refs 3,4). The investigation of the spectra of combination dispersion of the paraffins in the range of the valence oscillations of CH shows that in this range of the spectrum the lines of the different groups CH_3 , CH_2 , and CH overlap.

The parameters of these lines, however, do not remain strictly invariable. The position of the concerned group in the molecule and the whole structure of the molecule more or less influence these parameters. On this occasion relatively little variations of the frequency lead to a displacement and a splitting up of the lines. The parameters of the line $\sim 2965 \text{ cm}^{-1}$ are the most stable ones. The intensity of this line (for a CH_3 -group) is so characteristic that it can be used to determine the number of CH-groups in paraffins of unknown structure. The additivity of the spectra of combination dispersion which was found for several paraffins exhibits in the infrared spectra with respect to the groups CH_3 , CH_2 , and CH, a perfect analogy. It must be emphasized that the mentioned

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Investigation of the Vibration Spectra in the Range of SOV/48-22-9-13/40
the Valence Oscillations of CH

additivity in infrared spectroscopy often is overrated.
As a consequence of this the particular features of
the spectra which diverge from the principal characteristic
features remain unnoticed in some cases. There are 3
figures, 2 tables, and 4 references, 4 of which are Soviet.

Card 3/3

Coefficients of the Anharmonic Oscillations and the Resonance Interaction of Internal Oscillations of the CH-Groups SOV/48-22-9-14/40

combination scattering in the range of the second harmonic ($\nu 5800 \text{ cm}^{-1}$). By contrasting the process of intensity variation of certain lines in the spectra of various hydrocarbons with the number of the contained CH_2 - and CH_3 -groups the lines can be identified as belonging to the one or the other group. The frequencies, determined experimentally, as well as the coefficients of the anharmonic oscillations x are listed in the table. The comparatively small magnitude of these coefficients is conspicuous. With respect to the difficult measurement of the lines which partly overlap and considering the fairly exact computation their agreement can be regarded to be satisfactory. There are 1 table and 4 references, 3 of which are Soviet.

Card 2/2

AUTHOR: ~~Sughchinskiy, M. M.~~, Doctor of SOV/30-58-6-15/45
Physico-Mathematical Sciences

TITLE: Conference on Molecular Spectroscopy in London (Konferentsiya po molekulyarnoy spektroskopii v Londone)

PERIODICAL: Vestnik Akademii nauk SSSR, 1958, Nr 6, pp. 87 - 88 (USSR)

ABSTRACT: The groups of investigators for hydrocarbons of the English Mineral Oil Institute held this conference in London from February 27 to February 28. 300 persons attended this conference. Besides English scientists and functionaries from industry, physicists and chemists from Belgium, Germany, Holland, Italy, the Soviet Union, USA, Switzerland and France were present. The Soviet Delegation was composed of D.N.Shigorin (leader), K.I. Zimina, as well as ^{we were} the author of this article. The conference was friendly and hospitably received by all participants. The major part of the reports concerned results obtained in the field of infrared spectroscopy. D.N.Shigorin gave results obtained by the investigation on hydrogen-and metal-element compounds by means of the method of infrared spectra. N.Sheppard, who continues

Card 1/2

Conference on Molecular Spectroscopy in London

SOV/30-53-6-15/45

the works of the Soviet scientists A.N.Terenin, N.G.Yaroslavskiy and A.N.Sidorov in this field, reported on the investigation of infrared spectra of adsorbed molecules. M.M.Sushchinskiy described the method of analysis of the molecular structure of hydrocarbons by means of their spectra of dispersion. After the end of the conference, the Soviet delegation had a chance to become acquainted with work carried out in the field of molecular spectroscopy in a series of English laboratories.

1. Molecular spectroscopy--USSR

Card 2/2

AUTHOR: Sushchinskiy, M. M.

SOV/53-65-3-4/11

TITLE: The Use of Rotation Spectra of Combination Scattering for the Determination of the Structural Parameters of Molecules
(Primeneniye vlyashchatel'nykh spektrov kombinatsionnogo rasseyaniya dlya opredeleniya strukturnykh parametrov molekul)

PERIODICAL: Uspekhi fizicheskikh nauk, 1958, Vol. 65, Nr 3, pp. 441-450 (USSR)

ABSTRACT: Lately, the investigation of combination scattering for the purpose of the clarification of the molecular structure has become of increasing importance. The vibration spectra of combination scattering serve for the determination of the frequencies of inner-molecular oscillations, the effective forces between atoms and molecules, and of some electro-optical parameters of the molecules. The rotation spectra permit the determination of the moments of inertia of the molecules, and thus of the distances between the atoms. A number of works dealing with this subject was published recently (Refs 1-11). A survey of these publications is given by the present paper. First, the experimental conditions and methods are discussed in short and are demonstrated on the basis of photos of analyzed spectra (C_4H_2 , C_2H_2 , C_4D_2 ; C_3H_4 , C_3D_4). Further, the

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The Use of Rotation Spectra of Combination Scattering
for the Determination of the Structural Parameters of
Molecules

SOV/53-65-3-4/11

analysis of the rotation spectra of the combination scattering for various types of molecules is discussed. In the last chapter some measuring results concerning the C-binding in hydrocarbons are published and discussed. The following values are given:

ethylene	C=C	1,344 Å
allene	C=C	1,309 Å
	C-H	1,07 Å
butadiene	C=C	1,284 Å
	C=C	1,309 Å
	C-H	1,07 Å

The values 1,2067 Å (acetylene), 1,207 Å (dimethylacetylene), 1,205 Å (diacetylene) are given for the C≡C binding. C-C and C=C: 1,397 Å; C-H: 1,084 Å are given for the C-C and C=C binding respectively in the ring (e.g. for benzene). There are 2 figures, 4 tables and 26 references, 4 of which are Soviet.

1. Molecules--Structural analysis
2. Molecules--Scattering
3. Molecules--Vibration
4. Spectrum analyzers--Performance

Card 2/2

LANDSBERG, Grigoriy Samuilovich, akademik [deceased]; KAZANSKIY, Boris Aleksandrovich, akademik; BAZHULIN, P.A., doktor fiziko-matemat. nauk; BULANOVA, T.F.; LIBERMAN, A.L., MIKHAYLOVA, Ye.A.; PLATE, A.F.; SPERIN, Kh.Ue.; SUSHCHINSKIY, M.M.; TARASOVA, G.A.; UKHOLIN, S.A.; BRUSOV, I.I., red. Izd-va; KASHINA, P.S., tekhn.red.

[Determination of the individual hydrocarbon composition of straight-run gasolines by the combined method] Opređenje individual'nogo uglevodorodnogo sostava benzinov priamoi gonki kombinirovannym metodom. Moskva, Izd-vo Akad.nauk SSSR, 1959. 362 p. (MIRA 12:8)

(Gasoline)

SUSHCHINSKIY, M. M. (FIAN AS USSR, Moscow)

M. M. Sushchinskiy, "Investigation of the Rotational Isomerism of Paraffins by Means of the Raman Spectra."

report presented at the Symposium on Concepts of Conformation in Organic Chemistry which took place in Moscow at the IOKh AN SSSR (Institute of Organic Chemistry, AS USSR) from September 30 to October 2, 1958.

Izvestiya Akademii nauk SSSR, Otdeleniye khimicheskikh nauk, 1959, No. 3, 561-564.

66374

SOV/120-59-5-27/46
of Combinational (Raman)

A Double-beam Spectrometer
Scattering of Light

ΠY is a pre-amplifier, Y is a selective amplifier,
 $C\Delta$ is a synchronous detector, Φ is a photo-resistor
which is used to obtain signals which synchronise the work
of the detector, Y_{np} controls the reversing motor,
 \exists is a recording device (pen recorder), \mathcal{L}_1 is a
condenser and \mathcal{L}_2 is a lens which focuses the light
beam onto the photomultiplier photo-cathode.
A change in the photomultiplier voltage of ± 55 V, which
in the single-beam set-up gives a change in the recorded
signal by a factor of 2, has no effect on the double-beam
apparatus. Figure 2 shows the 4358 Å mercury line obtained
with the apparatus. The curve on the left shows the line
under normal working conditions of the lamp.
There are 3 figures and 2 Soviet references.

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SOV/51-b-2-4/39

AUTHORS: Podlovchenko, R.I., Sverdlov, L.M. and Sushchinskiy, M.M.

TITLE: Vibrational Spectra and Rotational Isomerism of 2,3-Dimethylbutane
(Kolobatel'nyye spektry i povorotnaya izomeriya 2,3-dimetilbutana;

PERIODICAL: Optika i Spektroskopiya, 1959, Vol 6, Nr 2, pp 146-153 (USSR)

ABSTRACT: Vibrational frequencies of 2,3-dimethylbutane were calculated using the method described by Yel'yashevich and Stepanov (Ref 4). Four configurations of 2,3-dimethylbutane were discussed: symmetrical and non-symmetrical trans-isomers (known also as trans-isomer and "twisted" isomer), and symmetrical and non-symmetrical cis-isomers. They are shown in Fig 1 by diagrams a, b, c and d respectively. It was assumed that the force constants are the same for all the four isomers. The force constants were taken from the data on ethane and propane (Ref 4). Each of the four rotational isomers of 2,3-dimethylbutane has 54 normal vibrations. The notation used for natural vibrational coordinates is shown in Fig 2. The calculated frequencies of normal vibrations are given in table 1. The experimental data on the Raman and infrared spectra of 2,3-dimethylbutane (Refs 2, 5 and 6) are incomplete. The authors made some additional measurements, in particular measurements of the degree of depolarization of Raman lines. The experimental

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24(7)

SOV/51-6-6-30/34

AUTHORS: Zubov, V.A., Petrasch, G.G. and Sushchinskiy, M.M.

TITLE: Some Applications of a Spectrometer with High Dispersion in Molecular Analysis Using Raman Spectra (Nekotoryye primeneniya spektrometra s bol'shoy disperziyey dlya molekulyarnogo analiza po spektram kombinatsionnogo rasseyaniya sveta)

PERIODICAL: Optika i spektroskopiya, 1968, Vol 6, Nr 6, pp 827-829 (USSR)

ABSTRACT: The authors describe a spectrometer for study of Raman spectra constructed at the Optical Laboratory of the Physics Institute, Academy of Sciences, U.S.S.R. A plane diffraction grating was used as the dispersing element. It was an echellette grating with 600 lines/mm, ruled area 140 x 150 mm, and it was prepared at the State Optical Institute. Collimators had objectives made at the State Optical Institute (focal length 1600 mm; relative aperture 1:12). The instrument was meant for use in the second order in the blue region and had dispersion of 5 Å/mm. A photomultiplier FEU-17 was used as a receiver. A PRK lamp or a low-pressure lamp could be used as a source. There are two ways of using this spectrometer. One is the 2-beam method described in detail earlier (Ref 4). In this case one records the ratio of the light signal coming from a cell with the scattering substance to the light signal proceeding directly from the lamp. The other way is the so-called differential method shown

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Some Applications of a Spectrometer with High Dispersion in Molecular Analysis Using Raman Spectra

SOV/51-6-6-30/34

schematically in Fig 1. Light from two different sources is directed alternately by a rotating mirror onto the entry slit of the spectrometer. When the intensities of the two light beams are the same the photomultiplier current is unmodulated and, therefore, blocked by a selective amplifier tuned to the modulation frequency. When one of the light beams is more intense the resulting photocurrent has an alternating component which is amplified and recorded. The spectrometer can be used to study line shapes (Ref 2) and structure of bands consisting of closely spaced lines. Other possible applications include: (i) studies near the wavelength of the exciting light (Fig 2), (ii) studies of mixtures (subtraction of the spectrum of one component from the spectrum of the mixture), (iii) studies of small changes of line widths and intensities. There are 2 figures and 5 references, 4 of which are Soviet and 1 English.

Card 2/2

24 (7)

AUTHORS: Bazhulin, P. A., Sushchinskiy, M. M. SOV/53-68-1-10/17

TITLE: Methods of Measuring the Raman-line Intensity of Light
(Metody izmereniya intensivnostey liniy kombinatsionnogo rasseyaniya sveta)

PERIODICAL: Uspekhi fizicheskikh nauk, 1959, Vol 68, Nr 1, pp 135-146 (USSR)

ABSTRACT: This article gives a survey of this special field, its possibilities and methods. First, the authors discuss the question which quantities must be measured and which measuring methods are necessary for a definite identification of the substance under investigation. In the experimental spectral investigation of Raman lines some difficulties arise which occur only in individual cases during the investigation of emission spectra. They are particularly due to the fact that the Raman lines are very weak and their background is relatively distinct, further, that these lines are rather wide. The difficulties are discussed in short, and the line contours as well as the corresponding possibilities of determination are then described (application of the spectral apparatus DFS-4, DFS-12). Figure 1 shows the contours in case (1) of dispersion form $p/q = \infty$, $r = 1$; (2) Gaussian form

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Methods of Measuring the Raman-line Intensity of Light SOV/53-68-1-10/17

$p/q = 0$, $r = 1.47$; (3) Voigt form $p/q = 0.6$, $r = 1.208$. It is necessary to determine the intensity in the maximum I_0 , the total intensity (surface under the contour curve) I_{∞} , and the half width δ which characterizes the line width. A usually accepted coefficient is also the "effective half width" δ_{eff} for which it holds: $\delta_{\text{eff}} = 2I_0/\pi I_{\infty}$; $r = \delta/\delta_{\text{eff}}$. An analytical approximation to the plotted curve is possible due to (1) the "slit"-apparatus function (rectangle for spectrographs; trapezoid for monochromators with differently wide inlet- and outlet slit; triangle for monochromators with equal slit widths); (2) the Gaussian function; (3) the dispersion function, and (4) a function suggested by the authors which is characterized by two parameters (line width and deviation from the dispersion form). The ratios are illustrated by representations of these curves (see also Table 1) and are discussed in a very detailed manner. In conclusion, the authors refer to the problem of measuring the intensity of Raman lines and particularly to the possibilities offered by ratio determinations with the help of comparative standard lines

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Methods of Measuring the Raman-line Intensity of Light SOV/53-68-1-10/17

(459 cm^{-1} of CCl_4). There are 5 figures, 3 tables, and
17 references, 14 of which are Soviet.

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